Requirements for All Machines

WAC 296-806-200 and WAC 296-806-300

Rule

REQUIREMENTS FOR SPECIFIC MACHINE HAZARDS

WAC 296-806-30002

Fit arbors and mandrels to the machine

You must

- Make sure that arbors and mandrels:
  - Have firm and secure bearing
  - Are free from play
- Only place or mount attachments on a machine arbor that have been accurately machined to the correct size and shape.

Requirements for All Machines

WAC 296-806-200 and WAC 296-806-300

Rule

WAC 296-806-30004

Safeguard belt and rope drives

Exemption:

- You don't need to safeguard the following types of belts when they're operating at 250 linear feet per minute or less:
  - Flat belts that are:
    - One inch wide or less
    - Two inches wide or less and have no metal lacings or fasteners
  - Round belts ½ inch or less in diameter
  - Single-strand v-belts 13/32 inch wide or less
- You don't need to safeguard belts that are in a room, vault, or similar space that contains only power transmission parts or equipment if the space:
  - Is controlled by lock and key or has similarly restricted access that allows only authorized persons to enter
  - Is well lit
  - Has a dry, level, and firm floor
  - Has a well-marked route with a vertical clearance of at least 5 feet 6 inches for authorized employees to follow to perform their duties
- You don't need to safeguard belt drives of light or medium duty sewing machines if **all** of the following apply:
  - It uses either a flat or a round belt without metal lacings and fasteners
  - The belt is located above the table top
  - The table top is designed so that employees near the machine aren't exposed to motion hazards while they work or as they pass by
  - The machine isn't used to sew heavy materials such as leather, canvas, denim, or vinyl
  - The operators' hands are not in, near, or on the wheel, nip point, belt area, or other motion hazard when the machine is operating

-Continued-

WAC 296-806-30004 (Continued)

Reference:

- You may need to follow additional requirements for sewing machines. See Sewing Machines, WAC 296-806-485, later in this chapter for more information.

You must

- Safeguard belt or rope drives that are 7 feet or less above the floor or working surface.

Reference:

- In the absence of a specific safeguarding method, follow the safeguarding requirements found in Safeguarding Methods, WAC 296-806-20042 through 296-806-20058. Examples of safeguarding methods include:
  - Guards
  - Devices
  - Safeguarding by distance
  - Safeguarding by location

Note:

- You may use a nip point and pulley guard on a vertical or inclined belt if it meets **all** of the following requirements:
  - 2 ½ inches wide or less
  - Running at a speed of less than 1,000 feet per minute
  - Free from metal lacings or fastenings

-Continued-

Requirements for All Machines

WAC 296-806-200 and WAC 296-806-300

Rule

WAC 296-806-30004 (Continued)

You must

- Safeguard overhead belts located more than 7 feet above the floor or working surface **if any of the following** apply:
  - The belt is located over a passageway or work space and travels at a speed of 1800 feet per minute or more
  - The distance between the centers of its pulleys is 10 feet or more
  - The belt is wider than 8 inches.
- Safeguard the space between the upper and lower runs of a horizontal belt if there's enough room for an employee to pass between them by providing both:
  - A guard along the upper run to keep the belt from contacting the worker or anything they may be carrying
    and
  - A platform over the lower run that has a railing that's completely filled in with wire mesh or other filler or by a solid barrier.

Note:

➢ The passage between the 2 belts is considered safeguarded if you completely block it with a guardrail or other barrier.

Exemption:

- In a power generating room, only the lower run of a horizontal belt has to be safeguarded.

WAC 296-806-30006

Make sure belt or rope drives meet these requirements

You must

1) Use an idler when your machine uses a quarter-twist belt that can run in either direction.
2) Make sure, when it is necessary to apply dressing to moving belts or ropes, that you apply the dressing at a point where the belts or ropes leave the pulley.
3) Make sure that a belt shifted by hand is **not** fastened with metal or other material that creates a hazard.
4) Make sure a bearing support that's next to a friction clutch or cutoff coupling has self-lubricating bearings that don't need frequent attention.
5) Use a substantial belt perch, such as a bracket or roller, when it isn't practical to use a loose pulley or idler to keep idle belts away from shafts.

Requirements for All Machines

WAC 296-806-200 and WAC 296-806-300

Rule

WAC 296-806-30008

Protect employees while shifting belts on belt and pulley drives

Exemption:

- A belt shifter isn't required on a belt and pulley system if:
  - It was installed on or before August 17, 1971
    or
  - The belt and pulley drive meets **all** of these requirements:
    - The belt is endless or laced with rawhide
    - A nip point guard in front of the cone safeguards the nip point of the belt and pulley
    - The nip point guard extends at least to the top of the largest step of the cone and is formed to show the contour of the cone

Definition:

A *nip point belt and pulley guard* is a guard that encloses the pulley and has rounded or rolled edge slots for the belt to pass through.

You must

1) Provide a permanent mechanical belt shifter on belt drives that use either:
   - Tight and loose (drive and idler) pulleys
     or
   - A cone pulley.
2) Protect employees from the nip point of the belt and pulley by either:
   - The belt shifter or clutch handle
     or
   - A vertical guard in front of the pulley that extends at least to the top of the largest step of the cone.

-Continued-

WAC 296-806-30008 (Continued)

You must

3) Make sure a belt shifter or clutch handle is:
   - Rounded to keep the operator from being injured
   - Easy to reach
   - Positioned to reduce the chance of being accidentally moved
   - Located either:
     – Over the machine
     or
     – Not higher than 6 feet 6 inches above the floor.

4) Make sure each belt shifter or clutch handle of the same type in your workplace moves in the same direction to stop a machine, that is, either all right or all left.

Exemption:

- A friction clutch handle on a countershaft carrying 2 clutch pulleys with open and crossed belts isn't required to move in the same direction as all other clutch handles or belt shifters if:
  – The clutch handle has 3 positions
  and
  – The machine is at rest when the clutch handle is in the center position.

-Continued-

Rule

WAC 296-806-30008 (Continued)

You must

5) Use a belt shifter to shift a belt on and off a fixed pulley.
   - When a belt shifter can't be used, you may use a belt pole if it's both:
     - Smooth
       and
     - Large enough to grasp securely

Note:

➢ A belt pole is also known as a “belt shipper” or “shipper pole.”

You must

6) Provide a locking-type belt shifter or other positive securing device on woodworking machines driven by belts and shafting.

WAC 296-806-30010

Make sure belt tighteners meet these requirements

You must

- Make sure belt tighteners:
  - Are substantially constructed and securely fastened
  - Have bearings that are securely capped
  - Have a mechanism to prevent them from falling
- Make sure belt tighteners used to activate machinery are securely held in the “off” position by either:
  - Gravity
    or
  - An automatic mechanism that must be released by hand

WAC 296-806-30012

Safeguard cams, connecting rods, tail rods, and extension piston rods

You must

- Safeguard cams, connecting rods, tail rods, or extension piston rods that could be contacted by employees.

Reference:

- In the absence of a specific safeguarding method, follow the safeguarding requirements found in Safeguarding Methods, WAC 296-806-20042 through 296-806-20058. Examples of safeguarding methods include:
  - Guards
  - Devices
  - Safeguarding by distance
  - Safeguarding by location

You must

- Make sure guardrails used to safeguard the side or ends of rods are at least 15 inches away from the rod when it's fully extended.

Requirements for All Machines

WAC 296-806-200 and WAC 296-806-300

Rule

WAC 296-806-30014

Safeguard chain and sprocket drives

Exemption:

- This section doesn't apply to hand-operated sprockets.

You must

- Enclose chains and sprocket wheels that are 7 feet or less above the floor or working surface.
- Make sure chain and sprocket drive enclosures that extend over machine or other working areas protect workers from falling drive parts.

WAC 296-806-30016

Safeguard fan blades

Reference:

➢ In the absence of a specific safeguarding method, follow the safeguarding requirements found in Safeguarding Methods, WAC 296-806-20042 through 296-806-20058. Examples of safeguarding methods include:

- Guards
- Devices
- Safeguarding by distance
- Safeguarding by location

-Continued-

WAC 296-806-30016 (Continued)

Exemption:

- A fan is considered guarded if it meets all of the following requirements:
  - It's in a basement, tower, or room locked against unauthorized entrance.
  - The vertical clearance in passageways between the floor and power transmission beams, ceiling, or any other objects, isn't less than 5 feet 6 inches.
  - The intensity of illumination must be a minimum of 10 foot candles when the area is occupied.
  - The footing is dry, firm, and level.
  - The route followed by the oiler or authorized personnel is protected in such a manner as to prevent accident.
  - The periphery of the fan blade is covered by a shroud.

You must

- Protect employees from exposure to the blades of any fan less than 7 feet above the floor or working surface.
- Prevent rods, pipes, or other material being handled by workers, from contacting moving fan blades.

Reference:

➢ For guard opening requirements, see Table 200-1, Largest Allowable Guard Opening, in Make sure guards meet these requirements, WAC 296-806-20042.

Requirements for All Machines

WAC 296-806-200 and WAC 296-806-300

Rule

WAC 296-806-30018

Safeguard flywheels

You must

- Safeguard flywheels that have any part of the wheel 7 feet or less above the floor or working surface with either:
  - An enclosure

    or
  - A guardrail, at least 15 inches but no more than 20 inches from the rim
- Make sure enclosures that safeguard flywheels located above a working area are strong enough to hold the weight of the wheel, if a shaft or wheel mounting fails.
- Provide a toeboard on guardrails used to safeguard flywheels that have any part of the wheel within 12 inches of the floor or working surface.
- Do both of the following to safeguard spoked flywheels that are 5 feet or less in diameter with smooth rims, when enclosures or guardrails can't be used:
  - Cover the spokes on the exposed side of the wheel with a disk guard that creates a smooth surface and edge

    and
  - Remove or cover keys or other dangerous projections on the wheel that aren't covered by the disk guard

Exemption:

- You may leave an open space of 4 inches or less between the outside edge of the disk guard and the rim of the spoked flywheel to make it easier to turn the wheel over.
- You may use an adjustable guard for the flywheel of a gasoline or diesel engine for starting the engine or for making running adjustments. A slot opening for a jack bar is permitted.

WAC 296-806-30020

Safeguard gears

You must

- Safeguard gears that are 7 feet or less above the floor or working surface.

Reference:

- In the absence of a specific safeguarding method, follow the safeguarding requirements found in Safeguarding Methods, WAC 296-806-20042 through 296-806-20058. Examples of safeguarding methods include:
  - Guards
  - Devices
  - Safeguarding by distance
  - Safeguarding by location

Exemption:

- You don't need to guard hand-operated gears that are used only to adjust machine parts that stop when the gears aren't being turned by hand.

Requirements for All Machines

WAC 296-806-200 and WAC 296-806-300

Rule

WAC 296-806-30022

Safeguard projections on moving parts

You must

- Safeguard projections on moving parts such as keys, setscrews, bolts, and nuts, by:
  - Removing them
  - Making them flush
  - Guarding with metal covers

Exemption:

- This requirement doesn't apply to keys or setscrews that are:
  - Within an enclosure
  - Below the plane of the rim of a pulley that's less than 20 inches in diameter
  - Located where employee contact isn't possible

WAC 296-806-30024

Safeguard pulleys

You must

- Safeguard pulleys that have any part of the pulley 7 feet or less above the floor or working surface.

Exemption:

- You don't need to safeguard pulleys that are in a room, vault, or similar space that contain only power transmission parts or equipment if the space:
  - Is controlled by lock and key or has similarly restricted access that allows only authorized persons to enter
  - Is well lit
  - Has a dry, level, and firm floor
  - Has a well-marked route with a vertical clearance of at least 5 feet, 6 inches for authorized employees to follow to perform their duties

Reference:

➢ In the absence of a specific safeguarding method, follow the safeguarding requirements found in Safeguarding Methods, WAC 296-806-20042 through 296-806-20058. Examples of safeguarding methods include:

- Guards
- Devices
- Safeguarding by distance
- Safeguarding by location

Requirements for All Machines

WAC 296-806-200 and WAC 296-806-300

Rule

WAC 296-806-30026

Make sure pulleys meet these requirements

You must

1) Make sure pulleys are designed and balanced for the speed at which they operate.
2) Make sure **not** to use pulleys that are cracked or have a piece broken out of the rim.

WAC 296-806-30028

Safeguard revolving drums, barrels, and containers

You must

- Safeguard revolving drums, barrels, or containers by an enclosure that's interlocked with the drive mechanism so that they can't revolve unless the enclosure is in place.

WAC 296-806-30030
Safeguard shafting

Exemption:

- You don't need to safeguard shafting that's in a room, vault, or similar space that contains only power transmission parts or equipment if the space:
  - Is controlled by lock and key or has similarly restricted access that allows only authorized persons to enter
  - Is well lit
  - Has a dry, level, and firm floor
  - Has a well-marked route with a vertical clearance of at least 5 feet 6 inches for authorized employees to follow to perform their duties

You must

- Enclose shafting that is 7 feet or less above the floor or working surface.
- Make sure projecting shaft ends either:
  - Have a smooth edge, smooth end, and project no more than ½ the diameter of the shaft
    or
  - Are guarded by a non-rotating cap or safety sleeve
- Safeguard shafting under a bench or table by enclosing it in a stationary casing or by using a trough with sides that both:
  - Cover the shafting to within 6 inches of the bottom of the table or to within 6 inches of the floor or working surface, whichever is appropriate
    and
  - Extend 2 inches beyond the end of the shafting.

Requirements for All Machines

WAC 296-806-200 and WAC 296-806-300

Rule

WAC 296-806-30032

Make sure shafting meets these requirements

You must

1) Keep shafting free of:
   - Excessive oil or grease
   - Rust or pitting from corrosion
2) Secure shafting against excessive endwise movement.

WAC 296-806-30034

Safeguard unused keyways

You must

- Fill, cover, or otherwise safeguard all unused keyways.

Reference:

➢ In the absence of a specific safeguarding method, follow the safeguarding requirements found in Safeguarding Methods, WAC 296-806-20042 through 296-806-20058. Examples of safeguarding methods include:
   - Guards
   - Devices
   - Safeguarding by distance
   - Safeguarding by location

WAC 296-806-30036

Make sure revolving collars meet these requirements

You must

- Make sure revolving collars are cylindrical.
- Make sure screws or bolts used in the collar do **not** project beyond the outside of the collar.

WAC 296-806-30038

Safeguard counterweights

You must

- Provide safeguarding for all counterweights where employees are exposed to contact.

Reference:

- In the absence of a specific safeguarding method, follow the safeguarding requirements found in Safeguarding Methods, WAC 296-806-20042 through 296-806-20058. Examples of safeguarding methods include:
  - Guards
  - Devices
  - Safeguarding by distance
  - Safeguarding by location